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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/646,226	08/22/2003	Izaya Okae	112857-424	1391
29175 7590 05/14/2008 BELI., BOYD & LLOYD, LLP P. O. BOX 1135 CHICAGO, IL 60690				
EXAMINER				
ECHELMMEYER, ALIX ELIZABETH				
ART UNIT		PAPER NUMBER		
1795				
MAIL DATE		DELIVERY MODE		
05/14/2008		PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/646,226

Applicant(s)

OKAE ET AL.

Examiner

Alix Elizabeth Echelmeyer

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1795

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 January 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 6-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 6-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-946)
- 3) ☐ Information Disclosure Statement(s) (PTO/SE/US)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Response to Amendment

1. This Office Action is in response to the amendment filed January 25, 2008.
Claims 1-5 have been cancelled. Claims 6-15 have been added. While claims 6 and 12 correspond generally to cancelled claims 1 and 5, both of claims 6 and 12 do not contain subject matter that was included in claims 1 and 5: specifically, while claims 1 and 5 listed Co as a possible M', claims 6 and 12 do not. Additionally, the limitations of claims 9, 10, 13 and 14 were not found in any previously filed claims. Since the claims raise new issues, the rejection is made final in light of the amendment.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.
3. Claims 6-9, 11-13 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamaura (JP 2002-075368) in view of Kurose et al. (WO00/02280, with US6,824,924 used as an English translation, since it is the 371 of the foreign application).

As for claims 6 and 12, Yamaura teaches a positive electrode active material for a nonaqueous electrolyte cell wherein the particles of active material are of the formula $\text{LiNi}_{1-x}\text{M}_x\text{O}_2$ and the surfaces of the particles are covered by particles of the general formula LiFePO_4 (abstract, [0001]).

In paragraph [0037] of the instant disclosure, applicants name LiFePO_4 as a preferable positive active material. The examiner believes that this compound is inherently of the olivine structure, since products of identical chemical composition cannot have mutually exclusive properties. MPEP 2112.02 (II)

Regarding claims 7 and 8, the $\text{LiNi}_{1-x}\text{M}_x\text{O}_2$ particles are 11.458 μm on average and the LiFePO_4 particles are 0.185 μm on average ([0054]).

With regard to claims 11 and 15, Yamaura fail to teach the claimed weight percent of LiFeO_4 to lithium nickelate substrate.

Yamaura teaches that the combination of the two positive electrode active materials results in a material that is both stable (because of the LiFePO_4) and has a high capacity (because of the lithium multiple oxide) ([0007]). Further, a balance of the two materials is necessary for the positive attributes of both materials to be available in the composite ([0008], [0025]).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to experiment with the amounts of each of the material in the positive electrode active material in order to achieve a balanced composite material. It

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has been held that discovering an optimum value of a result effective variable involves only routine skill in the art (MPEP 2144.05 IIB).

Yamaura fails to teach the lithium nickelate compound of instant claims 6, 9, 12 and 13.

Kurose et al. teach LiNiO_2 as a positive electrode active material (column 2 lines 56-58). Kurose et al. further teach that the use of LiNiO_2 as a positive electrode active material leads to a reduction in size and weight in the battery, increasing energy density.

It would be desirable to use LiNiO_2 as a positive electrode active material in the battery of Yamaura such as taught by Kurose et al. since it would lead to a reduction in size and weight in the battery, increasing energy density.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to look to the teachings of Kurose et al. suggesting the use of LiNiO_2 as a positive electrode active material in the battery of Yamaura, since such a substitution of LiNiO_2 for the lithium nickel oxide of Yamaura would result in the reduction of size and weight of the battery, leading to an increase in energy density.

4. Claims 10 and 14 rejected under 35 U.S.C. 103(a) as being unpatentable over Yamaura et al. in view of Kurose et al. as applied to claims 6 and 12 above, and further in view of Goodenough et al. (US 6,391,493).

Yamaura et al. in view of Kurose et al. fail to teach that the olivine compound of the positive active material is LiMnPO_4 .

Goodenough et al. teach that that a preferred olivine electrode compound is LiMnPO_4 (column 2 lines 22-24), since it has a larger free volume for lithium-ion motion, which leads to higher lithium-ion conductivity and higher power density, as well as making an inexpensive and nonpolluting battery (column 1 lines 51-57).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to look to the teachings of Goodenough et al. suggesting the use of LiMnPO_4 as a positive electrode active material in the battery of Yamaura in view of Kurose et al., since such a substitution of LiMnPO_4 for the LiFePO_4 of Yamaura is obvious over the teachings of Goodenough et al.

Response to Arguments

5. Applicant's arguments, see Remarks, filed January 25, 2008, with respect to the rejection of claims 1-5 under Yamaura have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground of rejection is made, see above.

Conclusion

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alix Elizabeth Echelmeyer whose telephone number is (571)272-1101. The examiner can normally be reached on Mon-Fri 8-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Susy N. Tsang-Foster can be reached on 571-272-1293. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Alix Elizabeth Echelmeyer
Examiner
Art Unit 1795

aee

/Susy N Tsang-Foster/

Supervisory Patent Examiner, Art Unit 1795